

REMARKS

Reconsideration of the present application is respectfully requested.

Claims 1-28 previously presented for examination remain in the application.

Claims 1, 7 and 26 have been amended to place them in better form for consideration on appeal. No claims have been canceled or added.

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being considered to be anticipated by U.S. Patent No. 5,410,278 to Itoh et al. ("Itoh").

Claim 1 includes the limitations

an n-type and a p-type device coupled between first and second supply voltages at a terminal; and
an output node coupled to the terminal, the output node, during operation of the apparatus, to provide an output signal having a switching delay in only one direction that is directly proportional to a leakage current of one of the n-type and p-type devices.

(Claim 1)(Emphasis added).

As argued previously, applicants respectfully submit that Itoh fails to teach at least the claimed apparatus as set forth in claim 1 to provide an inverted output signal having a transition delay in only one direction that is proportional to a leakage current of a device of the apparatus.

As discussed previously, Itoh discloses a ring oscillator that includes a plurality of inverters (11a, 11b and 11c in Figure 1), a leakage current generating part (12), and a current controlling part (13). The current controlling part supplies the inverters with a source current in accordance with a value of a leakage current generated from the leakage current generating part. The leakage current

generated from the leakage current generating part is correlated with a leakage current generated from a memory cell. (Itoh, Abstract).

Figure 3a of Itoh shows the inverter circuits of Itoh in more detail and Figure 3b shows the relationship between the input voltage "A" and the output voltage B of the inverter 11a. There is no disclosure in Itoh to teach or suggest that a transition in only one direction at an output node is correlated with a leakage current of a device in the apparatus of Itoh.

In the Final Office Action, it is stated that the Examiner disagrees with Applicants' position as stated above because it appears that the leakage current generated from the memory cell would inherently include a leakage current of the inverter itself. (Final Office Action mailed September 29, 2005, page 7, paragraph 8).

Assuming, for purposes of argument, that the leakage current generated from the memory cell of Itoh would inherently include a leakage current of an inverter of Itoh, Itoh would still fail to teach or suggest the claimed output node that has a transition in only one direction that is proportional to a leakage current of a device of an inverter.

For at least this reason, claim 1 is patentably distinguished over Itoh. Independent claims 7, 20 and 26 include a similar limitation. Claims 2-5, claims 8-12, claims 21-25 and claims 27-28 depend from and further limit claims 1, 7, 13, 20 and 26, respectively and thus, should also be found to be patentably distinguished over Itoh.

Claims 8-11 and 12 stand rejected under 35 U.S.C. § 103(a) as being considered to be unpatentable over Itoh in view of U.S. Patent No. 6,657,504 to Deal et al. ("Deal").

Claims 8-12 depend from and further limit claim 7, which includes a similar limitation as claim 1 argued above. Thus, for at least the reasons argued above in reference to claim 1, Itoh does not teach or suggest the claimed features of applicants' invention including at least the claimed apparatus that provides a transition in only one direction that is proportional to a leakage current of one of a p and an n type device in the apparatus.

It is stated in the Office Action that a combination of Itoh and Deal teaches the claimed features of applicants' invention as set forth in claims 8-12. As previously argued, Applicants respectfully submit that such a combination would not be made.

In particular, Itoh determines the oscillating frequency of a ring oscillator based on a leakage current of a leakage generating part (as argued above) while Deal determines the oscillating frequency of a ring oscillator based on a ring clock count value and a system clock count value (Deal, Abstract). Thus, one of ordinary skill in the art would not have been motivated to combine Itoh and Deal.

Further, as argued previously, even if Deal and Itoh were to be combined, the combination would still fail to teach or suggest the claimed features of applicants' invention including at least the claimed apparatus to provide an output signal having a transition delay in one direction that is proportional to a leakage current of one of a p or n type device of the apparatus.

There is no teaching or suggestion in Deal of the claimed apparatus that provides an output signal having a transition delay that is related to leakage, much less a transition delay in only one direction that is proportional to a leakage current of one of a p or n type device in the apparatus. Thus, the combination of Itoh and Deal would also fail to teach or suggest the claimed feature of applicants' invention.

For at least this reason, claims 8-12, which depend from and further limit claim 7, are patentably distinguished over Itoh and Deal, alone or in combination.

Claims 26-28 stand rejected under 35 U.S.C. § 103(a) as being considered to be unpatentable over Deal in view of Itoh.

Independent claim 26 also sets forth a leakage inverter and includes a limitation similar to that argued above in reference to claim 1. For at least the same reasons argued in reference to claim 1 and claims 8-12, a combination of Deal and Itoh, were such a combination to be made, would fail to teach or suggest the claimed features of applicants' invention as set forth in claim 26 including at least detecting a frequency of a leakage ring oscillator on an integrated circuit wherein the leakage ring oscillator includes at least a first leakage inverter to provide an inverted output signal having a transition delay in only one direction that is proportional to a leakage current of a device of the leakage inverter over a first temperature range.

Claims 27-28 depend from and further limit claim 26.

Thus, claims 26-28 should be found to be patentably distinguished over Deal and Itoh, alone or in combination, were such a combination to be made.

Applicants gratefully acknowledge the allowance of claims 13-25.

Applicants respectfully submit that the applicable objections and rejections have been overcome and that claims 1-28 are in condition for allowance. Such action is earnestly solicited. If the Examiner disagrees or believes that further discussion will expedite prosecution of this case, the examiner is invited to telephone applicants' representative at the number indicated below.

If there are any charges, please charge Deposit Account No. 02-2686.

Respectfully submitted,

Dated: November 29, 2005 /Cynthia Thomas Faatz/
Cynthia Thomas Faatz
Registration No. 39,973
Intel Corporation
M/S SC4-202
P.O. Box 5326
Santa Clara, CA 95056-5326
(408)765-2057

CERTIFICATE OF TRANSMISSION

37 C.F.R. § 1.8(a)

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on November 29, 2005.

Name: Cynthia Thomas Faatz

Signature: /Cynthia Thomas Faatz/